nRF7000

Low-power Wi-Fi 6 companion IC providing SSID-based Wi-Fi locationing

The nRF7000 IC is an advanced Wi-Fi companion IC specifically designed for SSID-based Wi-Fi locationing. It excels in active and passive scanning of Wi-Fi access points, enabling precis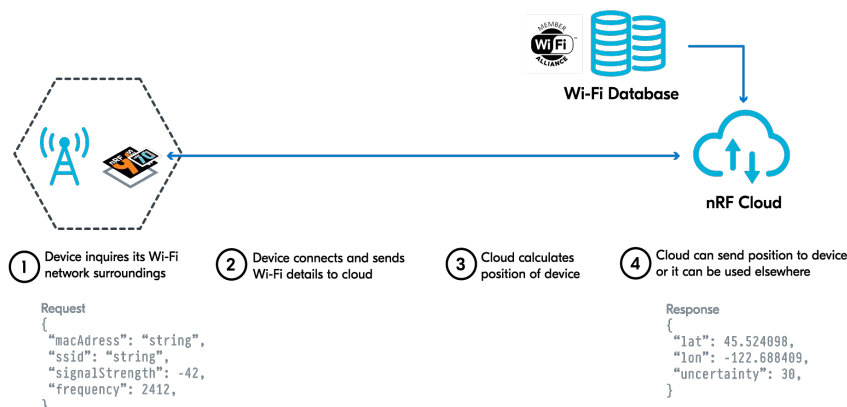e positioning and location awareness. While the nRF7000 IC does not support direct Wi-Fi communication for internet connectivity, it seamlessly integrates with Nordic's nRF91 Series cellular SiPs. By combining the strengths of the nRF7000 IC and the nRF91 Series, developers can leverage the combination of GNSS, cell-based and SSID-based Wi-Fi locationing to achieve robust and accurate location results, while separately utilizing the nRF91 Series SiP for cloud connectivity via cellular networks.

The nRF7000 IC's active and passive scanning capabilities allow for a comprehensive exploration of Wi-Fi networks, enhancing location accuracy in areas with a high density of Wi-Fi access points. This combination of Wi-Fi and cellular technologies opens up new possibilities for IoT applications that require reliable and accurate location information, alongside internet/cloud connectivity through a nRF91 Series SiP. The nRF7000 also supports non-Nordic Host devices.

nRF Connect SDK

To facilitate development and integration, the nRF7000 IC is fully compatible with Nordic's nRF Connect SDK. This comprehensive software development kit provides a unified platform with a range of tools and libraries specifically designed for harnessing the capabilities of the nRF7000 IC. With the nRF7000 IC and the nRF Connect SDK, developers can seamlessly incorporate SSID-based Wi-Fi locationing into their products, augmenting their IoT applications with accurate positioning and location-awareness features.

nRF7000 Wi-Fi Companion IC

- 2.4 GHz and 5 GHz dual-band
- Ideal coexistence with Bluetooth LE
- Supported in nRF Connect SDK
- Passive and active Wi-Fi scanning
- SPI / QSPI host interface support
- Complies with 802.11b/g/n/ax
- Co-existence interfaces

Applications

- Asset tracking
- Smart city & smart agriculture
- Industrial sensors

Prefered Nordic host devices

- nRF91 Series SiP

nRF7002 EK

Evaluation kit for nRF7000, nRF7001 and nRF7002 in Arduino shield form factor.

Functionality	nRF7000	nRF7001	nRF7002
Scanning (Passive & active)	✓	✓	✓
Station (STA)		✓	✓
SoftAP		✓	✓
Dual Band	✓		✓

Wi-Fi Database

nRF Cloud

1. Device inquires its Wi-Fi network surroundings
2. Device connects and sends Wi-Fi details to cloud
3. Cloud calculates position of device
4. Cloud can send position to device or it can be used elsewhere

Request
```
{
  "macAdress": "string",
  "ssid": "string",
  "signalStrength": -42,
  "frequency": 2412,
}
```

Response
```
{
  "lat": 45.524098,
  "lon": -122.688409,
  "uncertainty": 30,
}
```